

11-22-00

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11/21/00
jc813 U.S. PTO

Practitioner's Docket No. F-1418-P

PATENT

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P. § 601, 7th ed.

jc841 U.S. PTO
09/717782
11/21/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of

Inventor(s): Nicholas P. De Luca, Oliver M. Reyes, and Philippe M. Jacques

WARNING: 37 C.F.R. § 1.41(a)(1) points out:

"(a) A patent is applied for in the name or names of the actual inventor or inventors.

"(1) The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.63, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(i) is filed supplying or changing the name or names of the inventor or inventors."

For (title): Inflatable, Cushioning, Bubble Wrap Product Having Multiple, Interconnected, Bubble Structures

CERTIFICATION UNDER 37 C.F.R. § 1.10*
(Express Mail label number is mandatory.)
(Express Mail certification is optional.)

I hereby certify that this New Application Transmittal and the documents referred to as attached therein are being deposited with the United States Postal Service on this date November 21, 2000, in an envelope as "Express Mail Post Office to Addressee," mailing Label Number EL526320685US, addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231.

Sharon S. Feix

(type or print name of person mailing paper)

Sharon S. Feix

Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

*WARNING: Each paper or fee filed by "Express Mail" **must** have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will **not** be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

(New Application Transmittal [4-1]—page 1 of 11)

09747762-112100

1. Type of Application

This new application is for a(n)

(check one applicable item below)

- ☒ Original (nonprovisional)
☐ Design
☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. § 371(c)(4), unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

WARNING: Do not use this transmittal for the filing of a provisional application.

NOTE: If one of the following 3 items apply, then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED and a NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION.

- ☐ Divisional.
☐ Continuation.
☐ Continuation-in-part (C-I-P).

2. Benefit of Prior U.S. Application(s) (35 U.S.C. §§ 119(e), 120, or 121)

NOTE: A nonprovisional application may claim an invention disclosed in one or more prior filed copending nonprovisional applications or copending international applications designating the United States of America. In order for a nonprovisional application to claim the benefit of a prior filed copending nonprovisional application or copending international application designating the United States of America, each prior application must name as an inventor at least one inventor named in the later filed nonprovisional application and disclose the named inventor's invention claimed in at least one claim of the later filed nonprovisional application in the manner provided by the first paragraph of 35 U.S.C. § 112. Each prior application must also be:

(i) An international application entitled to a filing date in accordance with PCT Article 11 and designating the United States of America; or

(ii) Complete as set forth in § 1.51(b); or

(iii) Entitled to a filing date as set forth in § 1.53(b) or § 1.53(d) and include the basic filing fee set forth in § 1.16; or

(iv) Entitled to a filing date as set forth in § 1.53(b) and have paid therein the processing and retention fee set forth in § 1.21(f) within the time period set forth in § 1.53(f).

37 C.F.R. § 1.78(a)(1).

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. §§ 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. §§ 120, 121 or 365(c). (35 U.S.C. § 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. §§ 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

(New Application Transmittal [4-1]—page 2 of 11)

007492260

WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional application must be filed prior to the Saturday, Sunday, or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s). Enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

3. Papers Enclosed

A. Required for filing date under 37 C.F.R. § 1.53(b) (Regular) or 37 C.F.R. § 1.153 (Design) Application

17 Pages of specification

4 Pages of claims

7 Sheets of drawing

WARNING: DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. For comments on proposed then-new 37 C.F.R. § 1.84, see Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page . . ." 37 C.F.R. § 1.84(c).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)." 37 C.F.R. § 1.84(b).

☐ formal

☒ informal

B. Other Papers Enclosed

7 Pages of declaration and power of attorney (unsigned)

1 Pages of abstract

 Other

4. Additional papers enclosed

☐ Amendment to claims

☐ Cancel in this applications claims _____ before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)

☐ Add the claims shown on the attached amendment. (Claims added have been numbered consecutively following the highest numbered original claims.)

☐ Preliminary Amendment

☐ Information Disclosure Statement (37 C.F.R. § 1.98)

☐ Form PTO-1449 (PTO/SB/08A and 08B)

☐ Citations

- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath (including power of attorney)

NOTE: A newly executed declaration is not required in a continuation or divisional application provided that the prior nonprovisional application contained a declaration as required, the application being filed is by all or fewer than all the inventors named in the prior application, there is no new matter in the application being filed, and a copy of the executed declaration filed in the prior application (showing the signature or an indication thereon that it was signed) is submitted. The copy must be accompanied by a statement requesting deletion of the names of person(s) who are not inventors of the application being filed. If the declaration in the prior application was filed under § 1.47, then a copy of that declaration must be filed accompanied by a copy of the decision granting § 1.47 status or, if a nonsigning person under § 1.47 has subsequently joined in a prior application, then a copy of the subsequently executed declaration must be filed. See 37 C.F.R. §§ 1.63(d)(1)-(3).

NOTE: A declaration filed to complete an application must be executed, identify the specification to which it is directed, identify each inventor by full name including family name and at least one given name, without abbreviation together with any other given name or initial, and the residence, post office address and country or citizenship of each inventor, and state whether the inventor is a sole or joint inventor. 37 C.F.R. § 1.63(a)(1)-(4).

NOTE: "The inventorship of a nonprovisional application is that inventorship set forth in the oath or declaration as prescribed by § 1.62, except as provided for in § 1.53(d)(4) and § 1.63(d). If an oath or declaration as prescribed by § 1.63 is not filed during the pendency of a nonprovisional application, the inventorship is that inventorship set forth in the application papers filed pursuant to § 1.53(b), unless a petition under this paragraph accompanied by the fee set forth in § 1.17(i) is filed supplying or changing the name or names of the inventor or inventors." 37 C.F.R. § 1.41(a)(1).

☒ Enclosed (unsigned Declaration & Power of Attorney)

Executed by

(check all applicable boxes)

- ☐ inventor(s).
- ☐ legal representative of inventor(s).
37 C.F.R. §§ 1.42 or 1.43.
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.
 - ☐ This is the petition required by 37 C.F.R. § 1.47 and the statement required by 37 C.F.R. § 1.47 is also attached. See item 13 below for fee.

☒ Not Enclosed. (Signed Declaration & Power of Attorney)

NOTE: Where the filing is a completion in the U.S. of an International Application or where the completion of the U.S. application contains subject matter in addition to the International Application, the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

- ☐ Application is made by a person authorized under 37 C.F.R. § 1.41(c) on behalf of all the above named inventor(s).

001211 23 4 13 00

(The declaration or oath, along with the surcharge required by 37 C.F.R. § 1.16(e) can be filed subsequently).

- ☐ Showing that the filing is authorized.
(not required unless called into question. 37 C.F.R. § 1.41(d))

6. Inventorship Statement

WARNING: If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

The inventorship for all the claims in this application are:

☒ The same.

or

- ☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,
- ☐ is submitted.
- ☐ will be submitted.

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. An English translation of the non-English language application and the processing fee of \$130.00 required by 37 C.F.R. § 1.17(k) is required to be filed with the application, or within such time as may be set by the Office. 37 C.F.R. § 1.52(d).

- ☒ English
- ☐ Non-English
- ☐ The attached translation includes a statement that the translation is accurate. 37 C.F.R. § 1.52(d).

8. Assignment

☒ An assignment of the invention to Novus Packaging Corporation
of Cambridge, Massachusetts

- ☐ is attached. A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.
- ☒ will follow.

NOTE "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 C.F.R. § 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993, 1150 O.G. 62-64.

(New Application Transmittal [4-1]—page 5 of 11)

0971783 44100

9. Certified Copy

Certified copy(ies) of application(s)

Country	Appln. No.	Filed
Country	Appln. No.	Filed
Country	Appln. No.	Filed

from which priority is claimed

- ☐ Is (are) attached.
☐ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 C.F.R. § 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. § 120 is itself entitled to priority from a prior foreign application, then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 C.F.R. § 1.16)

A. ☒ Regular application

CLAIMS AS FILED					
Number filed		Number Extra	Rate	Basic Fee 37 C.F.R. § 1.16(a) \$ 710.00	
Total Claims (37 C.F.R. § 1.16(c))	8	- 20 = 0	× \$ 18.00	-0-	
Independent Claims (37 C.F.R. § 1.16(b))	1	- 3 = 0	× \$ 78.00	-0-	
Multiple dependent claim(s), if any (37 C.F.R. § 1.16(d))		0	+ \$260.00	-0-	

- ☐ Amendment cancelling extra claims is enclosed.
☐ Amendment deleting multiple-dependencies is enclosed.
☐ Fee for extra claims is not being paid at this time.

NOTE: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 C.F.R. § 1.16(d).

Filing Fee Calculation \$ 710.00

B. ☐ Design application
(\$310.00—37 C.F.R. § 1.16(f))

Filing Fee Calculation \$

- C. ☐ Plant application
(\$480.00—37 C.F.R. § 1.16(g))

Filing fee calculation

\$ _____

11. Small Entity Statement(s)

- ☒ Statement(s) that this is a filing by a small entity under 37 C.F.R. § 1.9 and 1.27

**Small Entity Status (37 CFR 1.27) - FORMS NO LONGER
REQUIRED (Eff. Sept. 8, 2000):**

- Mere written assertion (e.g., use check box on Application
Transmittal Forms) is acceptable

*Unless otherwise specified in the rule, the effective
date for the PBG-FINAL RULE is November 7, 2000.

(complete the following, if applicable)

- ☐ Status as a small entity was claimed in prior application
_____ / _____, filed on _____, from which benefit
is being claimed for this application under:

- 35 U.S.C. § ☐ 119(e),
☐ 120,
☐ 121,
☐ 365(c),

and which status as a small entity is still proper and desired.

- ☐ A copy of the statement in the prior application is included.

Filing Fee Calculation (50% of A, B or C above)

\$ 355.00

NOTE Any excess of the full fee paid will be refunded if small entity status is established and a refund request
are filed within 2 months of the date of timely payment of a full fee. The two-month period is not
extendable under § 1.136. 37 C.F.R. § 1.28(a).

12. Request for International-Type Search (37 C.F.R. § 1.104(d))

(complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time
when national examination on the merits takes place.

13. Fee Payment Being Made at This Time

☒ Not Enclosed

☒ No filing fee is to be paid at this time.

(This and the surcharge required by 37 C.F.R. § 1.16(e) can be paid subsequently.)

☐ Enclosed

☐ Filing fee \$ _____

☐ Recording assignment
(\$40.00; 37 C.F.R. § 1.21(h))
(See attached "COVER SHEET FOR
ASSIGNMENT ACCOMPANYING NEW
APPLICATION".) \$ _____

☐ Petition fee for filing by other than all the
inventors or person on behalf of the inventor
where inventor refused to sign or cannot be
reached
(\$130.00; 37 C.F.R. §§ 1.47 and 1.17(l)) \$ _____

☐ For processing an application with a
specification in
a non-English language
(\$130.00; 37 C.F.R. §§ 1.52(d) and 1.17(k)) \$ _____

☐ Processing and retention fee
(\$130.00; 37 C.F.R. §§ 1.53(d) and 1.21(l)) \$ _____

☐ Fee for international-type search report
(\$40.00; 37 C.F.R. § 1.21(e)) \$ _____

NOTE: 37 C.F.R. § 1.21(l) establishes a fee for processing and retaining any application that is abandoned for failing to complete the application pursuant to 37 C.F.R. § 1.53(f) and this, as well as the changes to 37 C.F.R. §§ 1.53 and 1.78(a)(1), indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid, or the processing and retention fee of § 1.21(l) must be paid, within 1 year from notification under § 53(f).

Total fees enclosed \$ _____

14. Method of Payment of Fees

☐ Check in the amount of \$ _____

☐ Charge Account No. _____ in the amount of
\$ _____

A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 C.F.R. § 1.22(b).

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☐ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. _____:

☐ 37 C.F.R. § 1.16(a), (f) or (g) (filing fees)

☐ 37 C.F.R. § 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

☐ 37 C.F.R. § 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)

☐ 37 C.F.R. § 1.17(a)(1)–(5) (extension fees pursuant to § 1.136(a)).

☐ 37 C.F.R. § 1.17 (application processing fees)

NOTE: “. . . A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission.” 37 C.F.R. § 1.136(a)(3).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires “Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying, . . . the issue fee. . . .” From the wording of 37 C.F.R. § 1.28(b), (a) notification of change of status must be made even if the fee is paid as “other than a small entity” and (b) no notification is required if the change is to another small entity.

(New Application Transmittal [4-1]—page 9 of 11)

0971783-1100

[illegible]

☐ Credit Account No. _____

☐ Refund

Donald C. Feix
SIGNATURE OF PRACTITIONER

(type or print name of attorney)

241 North San Mateo Drive

San Mateo, CA 94401

☐ **Incorporation by reference of added pages**

(check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)

- ☐ Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed

Number of pages added _____

- ☐ Plus Added Pages for Papers Referred to in Item 4 Above

Number of pages added _____

- ☐ Plus added pages deleting names of inventor(s) named in prior application(s) who is/are no longer inventor(s) of the subject matter claimed in this application.

Number of pages added _____

- ☐ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

☒ **Statement Where No Further Pages Added**

(if no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item)

- ☒ This transmittal ends with this page.

APPLICATION FOR A UNITED STATES PATENT

ENTITLED:

**INFLATABLE, CUSHIONING, BUBBLE WRAP PRODUCT HAVING
MULTIPLE, INTERCONNECTED, BUBBLE STRUCTURES**

APPLICANTS:

Nicholas P. De Luca
Oliver M. Reyes
Philippe M. Jacques

**INFLATABLE, CUSHIONING, BUBBLE WRAP PRODUCT HAVING
MULTIPLE, INTERCONNECTED, BUBBLE STRUCTURES**

5

BACKGROUND OF THE INVENTION

This invention relates to an inflatable, cushioning, bubble wrap product.

This invention relates particularly to a bubble wrap product which has the bubbles formed in individual inflatable strips. The individual inflatable strips extend laterally across the width of a sheet of film material, and each individual inflatable strip has a plurality of bubble chambers with each bubble chamber interconnected to an adjacent bubble chamber by an interconnecting passageway. The interconnected passageway is smaller in size and in internal volume than the bubble chambers but is sufficiently large to enable air volume and pressure in one inflated bubble chamber to be transmitted to adjacent bubble chambers for distributing a shock load on one bubble chamber along the entire length of the individual inflatable strip of interconnected bubble chambers.

This invention relates particularly to a bubble wrap product in which each individual inflatable strip is defined between two laterally extending spaced apart peripheral seal lines which have an undulating configuration free of corner shapes which could concentrate stresses.

20

Webs of plastic film which are constructed to permit the production of patterns of air filled envelopes, cushions and pillows have (in the past ten years or so) been used extensively for cushioning objects to be transported in containers.

The thin webs incorporate two thin sheets of plastic film and are inexpensive, tough, resilient and recyclable.

Inflated pillow packagings which are created from these webs of plastic film are used for void-fill packaging to replace products such as crumpled paper or polyethylene peanuts and for protective packaging to replace molded or extruded forms.

U.S. Patent Number 5,454,642; U.S. Patent Number 5,651,237; U.S. Patent Number 5,755,328; U. S. Patent Number 4,017,351; and U.S. Patent Number 5,824,392 disclose methods, apparatus, and webs of plastic film used for making strips of inflated pillow packaging of this general kind. Each of these U.S. patents is incorporated by reference in this application.

Co-pending Application Serial Number 09/207,129 filed December 8, 1998 and entitled "Method and Apparatus for Manufacturing Air-Filled Sheet Plastic Shipping Cushions and the Like", Nicholas P. De Luca and Andrew Perkins, inventors and co-pending Application Serial Number 09/439,552 filed November 12, 1999 and entitled "Machine and Method for Manufacturing a Continuous Production of Pneumatically Filled Inflatable Packaging Pillows", Andrew Perkins, Philipp Borchard, and Nicholas P. De Luca, inventors and co-pending Application Serial Number 09/638,843 filed August 14, 2000 and entitled "Methods and Apparatus for Inflating and Sealing Pillows in Packaging", Andrew Perkins, Oliver M. Reyes, Phillip Borchard, and Nicholas P. De Luca, inventors also disclose methods, apparatus and webs of plastic film of this general kind. Each of these three co-pending applications is assigned to the same assignee as the

assignee of this application. Each of these three co-pending applications is incorporated in this application by reference.

It is a primary object of the present invention to construct a web of two sheets of film material in a pattern of seal lines which enables an inflatable, conformable, cushioning, multiple bubble strip, packaging product to be produced which has significant functional and economic advantages over existing bubble packaging.

It is a related object to construct an inflatable packaging product which enables inflated bubble chambers to be large enough so that only a single layer of inflated packaging product can provide the necessary cushioning for many objects.

It is a related object to construct an inflatable packaging product in which substantially all of the area of the packaging product is available for inflation to provide cushioning.

It is a related object to construct an inflatable packaging product which is highly conformable to provide effective cushioning at all angles of possible shock loads on the object being shipped.

It is a related object to construct an inflatable packaging product in which the seal lines for inflatable bubble structures have an undulating configuration free of corner shapes or sharp bends which could concentrate stresses.

It is a related object to construct an inflatable packaging product having a plurality of individual inflatable strips of multiple bubble cushioning structures which extend laterally across the longitudinal length a web of inflated film material and in which each

bubble chamber in an individual inflatable strip is interconnected to an adjacent bubble chamber by an interconnecting passageway which is smaller in size and internal volume than the bubble chambers but which is sufficiently large to enable air volume and pressure in one inflated bubble chamber to be transmitted to adjacent bubble chambers for distributing a shock load on one bubble chamber along the entire length of the inflatable strip of interconnected bubble chambers.

SUMMARY OF THE PRESENT INVENTION

An inflatable, conformable, cushioning, multiple bubble strip, packaging product is constructed for interposing between and engagement with both the interior surfaces of a shipping container and the outer surfaces of one or more objects packaged within the shipping container. The inflatable packaging product is constructed, when inflated, to reduce or to eliminate the transfer of shock load from the shipping container to the objects packaged within the shipping container.

The packaging product comprises a first sheet of film material and a second sheet of film material. The sheets have substantially equal lengths and substantially equal widths. The sheets are joined together as a web in a pattern of seal lines.

The pattern of seal lines form an inflation channel which extends linearly along the length of the sheets for receiving pressurized air from an outlet end of an inflation tube.

The pattern of seal lines also form a plurality of individual inflatable strips of multiple bubble cushioning structures which extend laterally from the inflation channel.

Each individual inflatable strip has a plurality of bubble chambers with each bubble chamber interconnected to an adjacent bubble chamber by an interconnecting passageway which is smaller in size and internal volume than the bubble chambers but which is sufficiently large to enable air volume and pressure in one inflatable bubble chamber to be transmitted to adjacent bubble chambers for distributing a shock load on one bubble chamber along the entire length of the individual inflatable strip of interconnected bubble chambers.

Each individual inflatable strip of multiple bubble cushioning structures has an entrance port connecting the first bubble chamber in the strip to the inflation channel for receiving pressurized air at the inflation station to inflate all of the bubble chambers in the individual inflatable strip.

The entrance port is configured to permit the entrance port to be sealed by a line seal formed across the entrance port by a heated sealing element at a sealing station as the web of film material is continuously and uninterrupted transported through the sealing station after the bubble chambers have been inflated at the inflation station.

Each individual inflatable strip is defined between two laterally extending spaced apart peripheral seal lines of the pattern. The peripheral seal lines have an undulating configuration free of corner shapes or sharp bends which could concentrate stresses.

The peripheral seal lines have a generally sinusoidal configuration as viewed from above the web formed by the two sheets.

In a preferred embodiment of the present invention the bubble chambers in one individual inflatable strip are laterally offset with respect to the bubble chambers in an immediately adjacent individual inflatable strip so that a bubble chamber in one inflatable strip is opposite an interconnecting passageway in an immediately adjacent inflatable strip.

In a preferred embodiment of the present invention a peripheral seal line on one side of a first inflatable strip is also a peripheral seal line for a second individual inflatable strip which is immediately adjacent said one side of the first inflatable strip.

In the present invention the bubble chambers can be made sufficiently large so that only a single layer of the inflated packaging product can provide the necessary cushioning for many objects.

In one embodiment of the present invention the inflation channel extends along one side edge of the web, and each individual inflatable strip extends across substantially the entire width of the web.

In another embodiment of the present invention the inflation channel extends along a center portion of the web, and the individual inflatable strips extend laterally outwardly from the central inflation channel toward the peripheral side edges of the web.

Inflatable packaging products which incorporate the features described above and which function as described above comprise additional objects of the invention.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings, which

by way of illustration, show preferred embodiments of the present invention and the principles thereof and what are now considered to be the best modes contemplated for applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

BRIEF DESCRIPTION OF THE DRAWING VIEWS

Figure 1 is an isometric view showing a bubble wrap product constructed in accordance with one embodiment of the invention. Figure 1 shows a patterned web of the bubble wrap product in the process of being inflated and sealed. The patterned web is taken off of a storage roll and then advanced through a machine. The machine inflates bubble chambers of the patterned web at an inflation station and then seals the air in the inflated bubble chambers at a sealing station.

Figure 2 is a top plan view of a portion of the uninflated web shown in Figure 1.

Figure 3 is a plan view like Figure 2 but showing a packaging product constructed in accordance with another embodiment of the present invention. In Figure 3 the inflation channel extends through the center portion of the web while in Figure 2 the inflation channel extends along one side portion of the web.

Figure 4 is a view like Figure 2 but showing a packaging product having bubble chambers which are smaller in size than those of Figure 2.

Figure 5 is a view like Figure 3 but showing a packaging product having smaller size bubble chambers.

Figure 6 is an isometric view showing how the inflated packaging product (see the inflated product shown in the lower part of Figure 1) is used to envelope and cushion an object to be shipped within a shipping container. In Figure 6 the object to be shipped is a generally rectangular shaped object. Figure 6 shows how the construction of the inflated packaging product of the present invention is readily conformable to wrap around all surfaces of the rectangular object, including the corner areas of the object, to provide cushioning against shock loads imposed at any angle on the outer shipping container. Figure 6 also shows how the shape, size and volumes of the inflated bubble chambers are large enough so that a single layer of the packaging product can provide the necessary cushioning for the object to be shipped.

Figure 7 is an isometric view like Figure 6 but showing the inflated packaging product of the present invention can be wrapped about a cup to cushion the cup for shipment within the outside container.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 is an isometric view showing a bubble wrap product 11 constructed in accordance with one embodiment of the present invention.

Figure 1 shows a patterned web of the bubble wrap product 11 in the process of being inflated and sealed.

As illustrated in Figure 1 the uninflated patterned web of the bubble wrap product 11 is stored on a storage roller 13 and is looped over guide rollers 15 and 17 as the web 11 is advanced, in the direction indicated by the block arrow 18, to and through a machine 19.

5 The machine 19 inflates bubble cushioning structures and interconnecting passageways with pressurized air at an inflation station and seals the pressurized air within the bubble chambers and the interconnecting passageways at a sealing station (as will be described in more detail below).

10 In the preferred embodiments of the present invention the bubble wrap product 11 is constructed so that the inflation and sealing can be accomplished as the web 11 is moved continuously, without interruption or intermittent stopping, through the machine 19 during a production run. This will also be described in more detail below.

15 The lower part of Figure 1 shows the web 11 in its inflated form and ready for use as a cushioning packaging product.

 In the inflated form individual inflated strips 21 extend laterally across the width of the web 11.

 Each individual inflated strip 21 comprises a series of inflated bubble chambers 23 with each bubble chamber 23 interconnected to an adjacent bubble chamber 23 by an interconnecting passageway 25.

20 The interconnecting passageways 25 are smaller in size and internal volume than the bubble chambers 23, but the passageways 25 are sufficiently large to enable air

volume and pressure in one inflated bubble chamber 23 to be transmitted to adjacent bubble chambers 23 for distributing a shock load (imposed on or near one bubble chamber 23) along the entire length of the individual strip 21 of interconnected bubble chambers 23.

5 The interconnecting passageways 25 also function to facilitate bending or creasing of the packaging product 11 by folding or bending along a line passing through the passageways 23 at any one of a number of varied angles. This function will be better understood with reference to Figures 6 and 7 described in more detail below. This function enables the packaging product 11 to be highly conformable to enable and to cushion the object being shipped, as also will become more apparent from a review of Figures 6 and 7.

10 A seal line 27 produced by the inflating and sealing machine 19 (see the bottom part of Figure 1) closes one end (the right hand end as viewed in Figure 1) of each inflated strip 21.

15 The length of the inflated packaging product to be used for any particular application can be determined either by cutting across the inflated web 11 or by detaching along preformed perforation lines (not shown in Figure 1).

20 The seal line 27 is formed by the inflating and sealing machine 19, but the seal line pattern on the upper part of the web 11 shown in Figure 1 is preformed either by a pressing machine or by a continuous roller mechanism.

Pattern forming machines of these kinds are disclosed in several of the U.S. patents which are incorporated by reference in this application.

The web 11 is formed of a first sheet of film material and a second sheet of film material with both sheets having substantially equal lengths and substantially widths.

5 The first and second sheet can be separate sheets or can be a single sheet that is folded over to provide the two sheets.

The two sheets are joined together in a web by the pattern of seal lines shown in the top part of Figure 1.

The pattern of seal lines shown in the top part of Figure 1 form an inflation channel 31 which extends linearly along the length of web 11.

In the particular embodiment of the packaging product 11 shown in Figure 1, the inflation channel 31 extends along one side edge portion of the web 11.

In the embodiment shown in Figure 3, the inflation channel 31 extends linearly along a center portion of the web 11.

15 The inflation channel 31 is defined between spaced apart seal lines 33 and 35.

The seal line 33 is opened at spaced intervals to provide outlet ports 37. The outlet ports 37 function to permit a certain amount of the inflation pressure in the inflation channel 31 to be vented to atmosphere.

In addition, the air that exits from the outlet ports 37 can be sensed by a pressure transducer (as described in application Serial Number 09/638,843 incorporated by reference in this application) to allow for accurate position sensing of the individual

inflatable strips 21 as these strips move through the machine 19. This sensing of escaping
air through the outlet ports 37 can be used as signals for counting the number of strips
inflated in a particular run through the machine and can also be used to stop the
movement of the web 18 through the machine, after one production run of a selected
5 number of inflated strips, at a position which is the right position to start a subsequent
production run of a selected number of inflated strips 21.

The seal line 35 is open at intervals to provide entrance ports 41. The entrance
ports 41 permit pressurized air from the inflation channel 31 to enter the individual
inflatable strips 21 for inflating the bubble chambers 23 and interconnecting passageways
25 (as described above).

Each individual and inflatable strip 21 is defined between two laterally extending
seal lines 43.

In the preferred embodiments of the invention shown in Figures 1-7 each laterally
extending seal line 43 serves as a common boundary between two immediately adjacent
inflatable strips 21 so that the only area of the inflatable portion of the web 11 which
cannot be inflated and used for cushioning is the very small area of the seal lines 43
themselves.

As can best be seen by viewing the lower part of Figure 1, the bubble chambers 23
of one individual inflatable strip 21 are offset laterally with respect to the bubble
20 chambers 23 of an immediately adjacent individual inflatable strip 21. A bubble chamber

23 in one strip is directly opposite a passageway 25 of an immediately adjacent inflatable strip 21.

The seal line 27 shown in the lower part of Figure 1 is formed across the inlet ports 41 at the sealing station of the machine 19 as the web 11 is transported continuously and without interruption through the sealing station and through the machine 19.

The machine 19 shown in Figure 1 is the same as the machine illustrated and described in detail in co-pending application Serial Number 09/638,843 filed August 14, 2000, entitled "Methods and Apparatus for Inflating and Sealing Pillows in Packaging", Andrew Perkins, Oliver M. Reyes, Phillip Borchard, and Nicholas P. De Luca, inventors, assigned to the same assignee as the assignee of this application and incorporated by reference in this application.

A short summary of the parts of that machine as shown in Figure 1 of the drawings in this application will now be described.

The machine 19 includes a first set of film transport rollers 51, a second set of film transport rollers 53 and a drive mechanism, including a drive belt 55, for driving the film transport rollers 51 and 53.

An outlet bulb 57 of an inflation tube 59 is positioned within the inflation channel 31 and introduces air under pressure into the inflation channel for inflating the individual inflatable strips 21 by causing pressurized air to flow through the entrance ports 41.

The outlet ports 37 which are opposite certain ones of the entrance ports 41 serve to regulate the level of the air pressure within the inflation channel 31 (as described in

more detail in co-pending application Serial Number 09/638,843 incorporated by reference in this application).

The seal line 27 is formed across the entrance ports 41 as the strip of the film which contains the entrance ports 41 is passed through a sealing station. The film is engaged with a sealing wheel 61 on one side of the film 11 and is engaged with a heated sealing element on the other side of the film. The heated sealing element includes a fabric covered, electrically heated Nicrom wire.

A slitting station (not shown in Figure 1 but described in application Serial Number 09/638,843) slits the inflation channel 31 to permit the web 11 to pass over the inflation tube 59 after the seal line 27 has been formed by the machine 19.

The pressure of the inflation air can range from ½ pounds per square inch gauge to 10 pounds per square inch gauge.

The material of the two sheets making up the web 11 can be low density polyethylene or can be high density polyethylene. The thickness of the web 11 can be one mil to ten mils.

The height of an inflated bubble chamber 23 can be from 1/4 inch to 9 inches.

The configuration of each seal line 43, as viewed from above in Figure 1, is, in the preferred embodiments of the present invention, a wavy, undulating, curved configuration without corners or sharp bends that could concentrate stresses.

In a specific embodiment as illustrated in Figures 1-7 of the drawings, the configuration of a seal line 43 is generally sinusoidal, as viewed from directly above.

The center line of each individual inflatable strip 21 preferably extends orthogonally across the width of the web 11, but the center line could be itself a wavy configuration and could extend at some angle other than directly orthogonal.

Figure 2 is an enlarged top plan view of a web 11 having the line pattern structure shown in the top part of Figure 1.

Figure 3 is a plan view like Figure 2 but shows a packaging product constructed in accordance with another embodiment of the present invention. In Figure 3 the inflation channel 31 extends through the center portion of the web 11.

In Figure 2 the inflation channel 11 extends along one side portion of the web 11.

The embodiment of the patterned web 11 shown in Figure 3 is inflated and sealed by an apparatus and method described in detail in co-pending application Serial Number 09/439,552 filed November 12, 1999, and titled "Machine and Method for Manufacturing a Continuous Production of Pneumatically Filled Inflatable Packaging Pillows", Andrew Perkins, Nicholas P. De Luca, and Phillip Borchard, inventors, and assigned to the same assignee as the assignee of this application, and incorporated by reference in this application.

In the embodiment shown in Figure 3, two seal lines 27 are formed alongside the inflation channel 31 and across the inlet ports 41.

Figure 4 is a view like Figure 2 but showing a packaging product having bubble chambers which are smaller in size than those of Figure 2.

Figure 5 is a view like Figure 3 but showing a packaging product having smaller size bubble chambers than Figure 3.

Figure 6 is an isometric view showing how the inflated packaging product 11 of the present invention is used to cushion a generally rectangular shaped object 71 within a shipping container 73.

Figure 6 shows how the individual bubble chambers 23 are effectively engaged with all outer surfaces of the object 71 to envelope the object 71 within the conformable inflated packaging product 11.

As noted above, the interconnecting passageways 25 in particular are readily foldable and bendable along lines as needed to facilitate conforming of the inflated packaging product 11 to the particular object being shipped. The construction of the individual inflatable strips which permits a certain amount of bending or compressing of some parts of the inflated strip (by transferring pressurized air to other parts of the inflated strip) also facilitates conformation of the packaging product to the configuration of the object being shipped.

The conformability of the packaging product (the ability to wrap all surfaces of the object, including corner areas of the object) provides cushioning against shock loads imposed at any angle on the outer shipping container 11.

Figure 6 also shows how the shape, size and volumes of the inflated bubble chambers 23 are large enough so that a single layer of the packaging product 11 can provide necessary cushioning for the object to be shipped.

Figure 7 is an isometric view like Figure 6 but shows the inflated packaging product 11 wrapped about a cup 75 to cushion the cup for shipment within the outer container 73.

While we have illustrated and described the preferred embodiments of our invention, it is to be understood that these are capable of variation and modification, and we therefore do not wish to be limited to the precise details set forth, but desire to avail ourselves of such changes and alterations as fall within the purview of the following claims.

CLAIMS

1. An inflatable, conformable, cushioning, multiple bubble strip, packaging product constructed for interposing between and in engagement with both the interior surfaces of a shipping container and the outer surfaces of one or more objects packaged within the shipping container and also constructed, when inflated, to reduce or to
5 eliminate the transfer of shock loads from the shipping container to the objects packaged within the shipping container, said packaging product comprising,

a first sheet of film material,

a second sheet of film material,

said sheets having substantially equal lengths and substantially equal widths,

said sheets being joined together as a web in a pattern of seal lines,

said pattern of seal lines forming an inflation channel extending linearly along the length of the sheets for receiving pressurized air from an outlet end of an inflation tube disposed within the inflation channel at an inflation station as the sheets are transported past the sealing station in the process of inflating and sealing strips of multiple bubble
15 cushioning structures in the packaging product,

said pattern of seal lines also forming a plurality of individual inflatable strips of multiple bubble cushioning structures extending laterally from said inflation channel,

each individual inflatable strip having a plurality of bubble chambers with each bubble chamber interconnected to an adjacent bubble chamber by an interconnecting
20 passageway which is smaller in size and internal volume than the bubble chambers but

which is sufficiently large to enable air volume and pressure in one inflated bubble chamber to be transmitted to adjacent bubble chambers for distributing a shock load on one bubble chamber along the entire length of the individual inflatable strip of interconnected bubble chambers,

25 each individual inflatable strip of multiple bubble cushioning structures having an entrance port connecting the first bubble chamber in the strip to the inflation channel for receiving pressurized air at the inflation station to inflate all of the bubble chambers in the individual inflatable strip,

30 said entrance port being configured to permit the entrance port to be sealed by a line seal formed across the entrance port by a heated sealing element at a sealing station as the sheets of film material are continuously and uninterruptedly transported through the sealing station after the bubble chambers have been inflated at the inflation station, and

35 each individual inflatable strip being defined between two laterally extending spaced apart peripheral seal lines which have an undulating configuration free of corner shapes or sharp bends which could concentrate stresses.

2. The invention defined in claim 1 wherein said peripheral seal lines have a generally sinusoidal configuration as viewed from above the sheets.

3. The invention defined in claim 1 wherein the bubble chambers in one individual inflatable strip are laterally offset with respect to the bubble chambers in an immediately adjacent individual inflatable strip so that a bubble chamber in one inflatable strip is opposite an interconnecting passageway in an immediately adjacent inflatable strip.

4. The invention defined in claim 3 wherein a peripheral seal line on one side of a first individual inflatable strip is also a peripheral seal line for a second individual inflatable strip immediately adjacent said one side of the first individual inflatable strip.

5. The invention defined in claim 1 wherein the bubble chambers are sufficiently large that only a single layer of the inflated packaging product can provide the necessary cushioning for many objects.

6. The invention defined in claim 5 wherein the height of a bubble chamber when inflated is substantially 1 ½ inches.

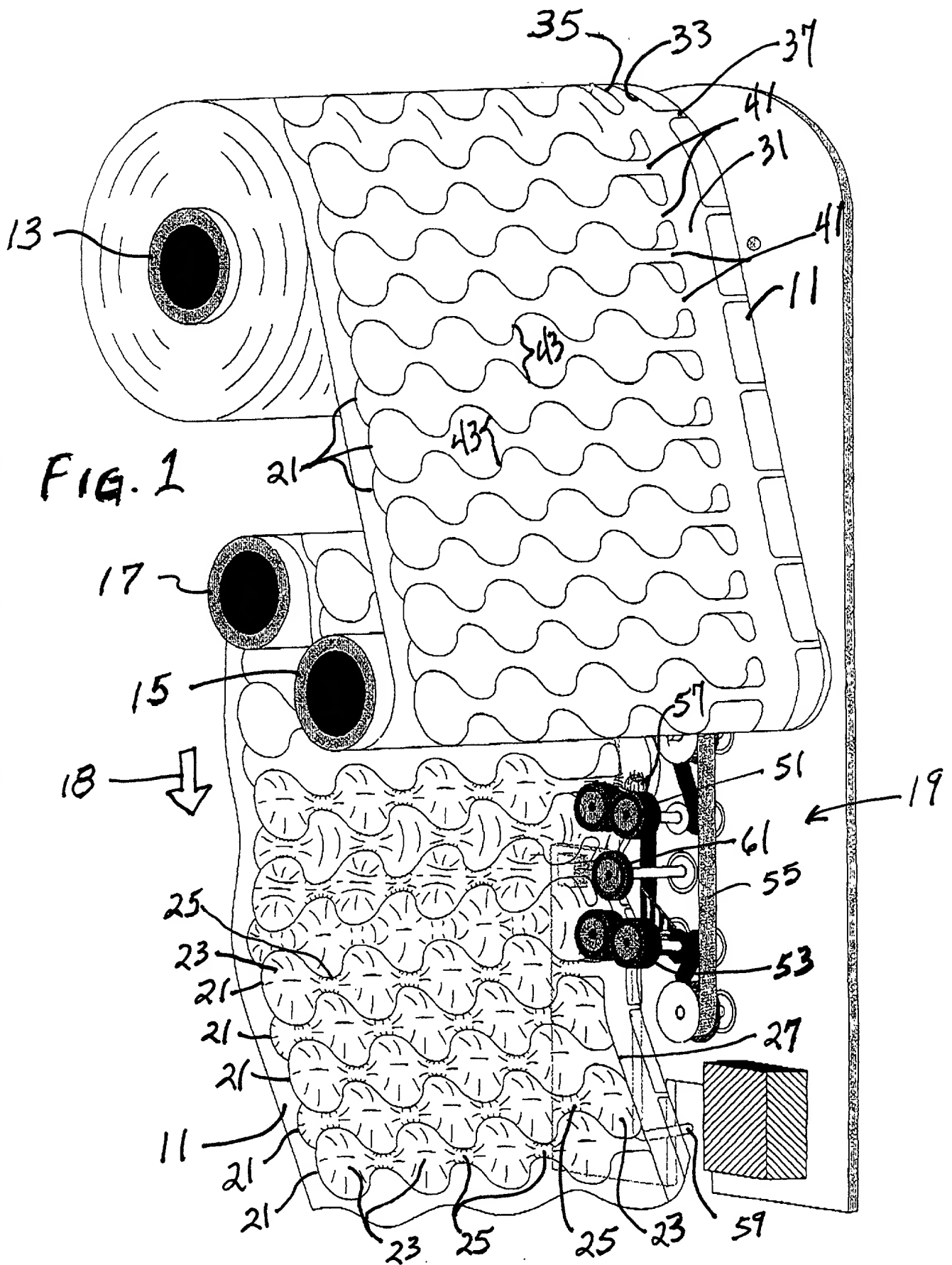
7. The invention defined in claim 1 wherein the inflation channel extends along one side edge of the web and each individual inflatable strip extends across substantially the entire width of the web.

8. The invention defined in claim 1 wherein the inflation channel extends along a center portion of the web and the individual inflatable strips extend laterally outwardly from the central inflation channel toward the peripheral side edges of the web.

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THE ABSTRACT

An inflatable, conformable, cushioning, packaging product comprises a plurality of individual inflatable strips of multiple bubble cushioning structures. Each individual inflatable strip has a plurality of bubble chambers with each bubble chamber interconnected to an adjacent bubble chamber by an interconnecting passageway which is smaller in size and internal volume than the bubble chambers, but which is sufficiently large to enable air volume and pressure in one inflated bubble chamber to be transmitted to adjacent bubble chambers for distributing a shock load on one bubble chamber along the entire length of the individual inflatable strip of interconnected bubble chambers. Each individual inflatable strip is defined between two laterally extending spaced apart peripheral seal lines which have an undulating configuration free of corner shapes which could concentrate stresses.



0074793-43400

FIG. 2

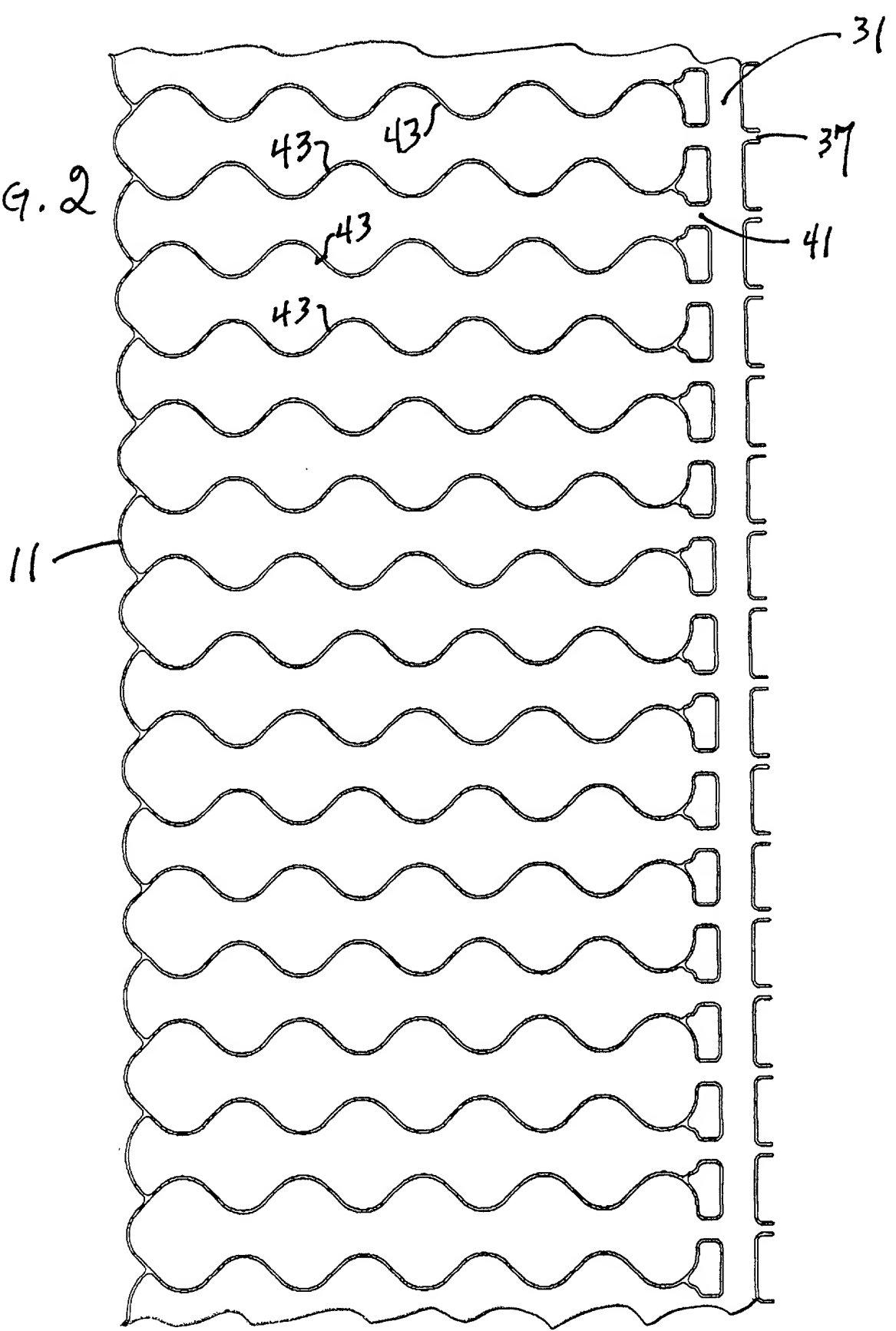


FIG. 3

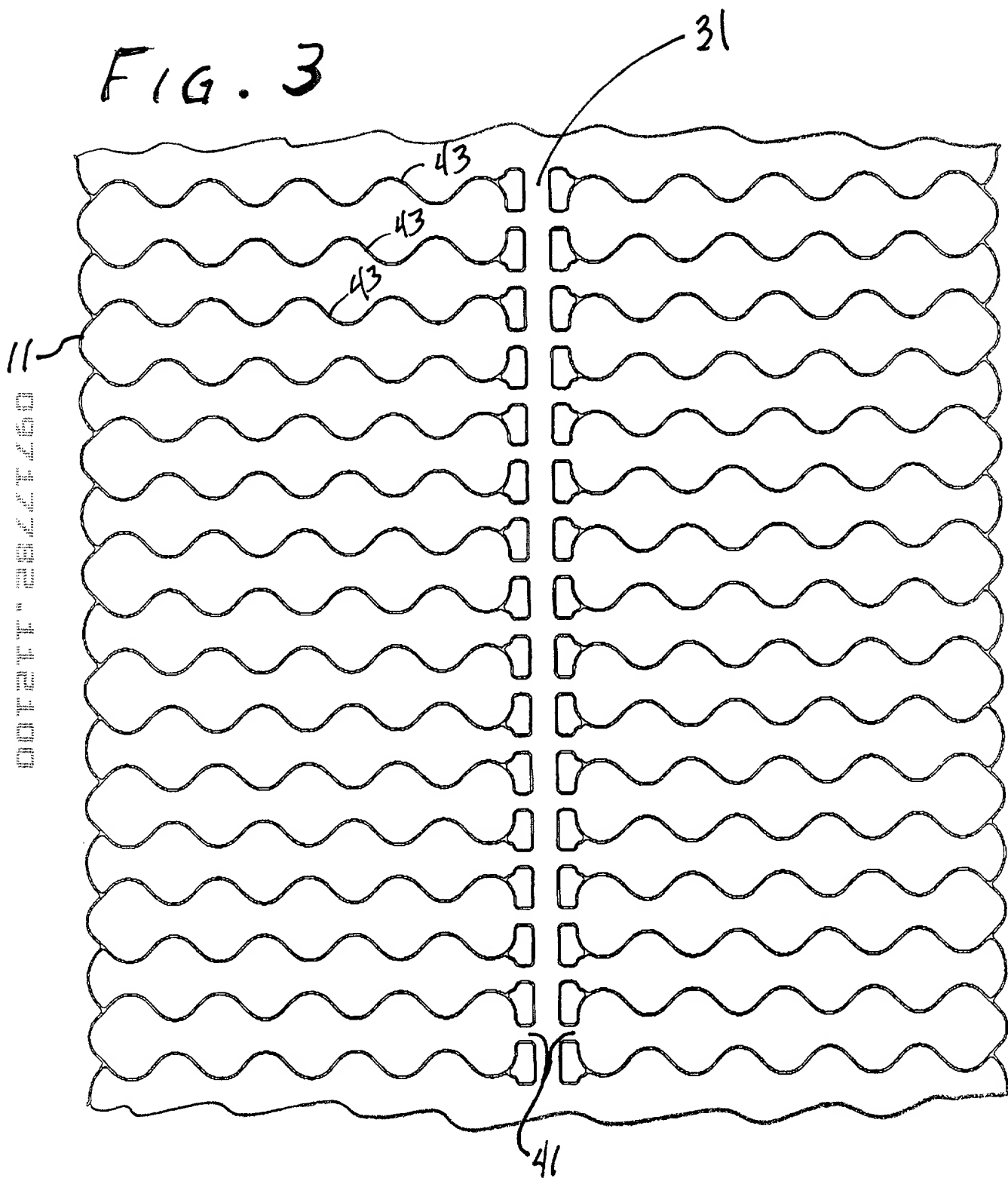
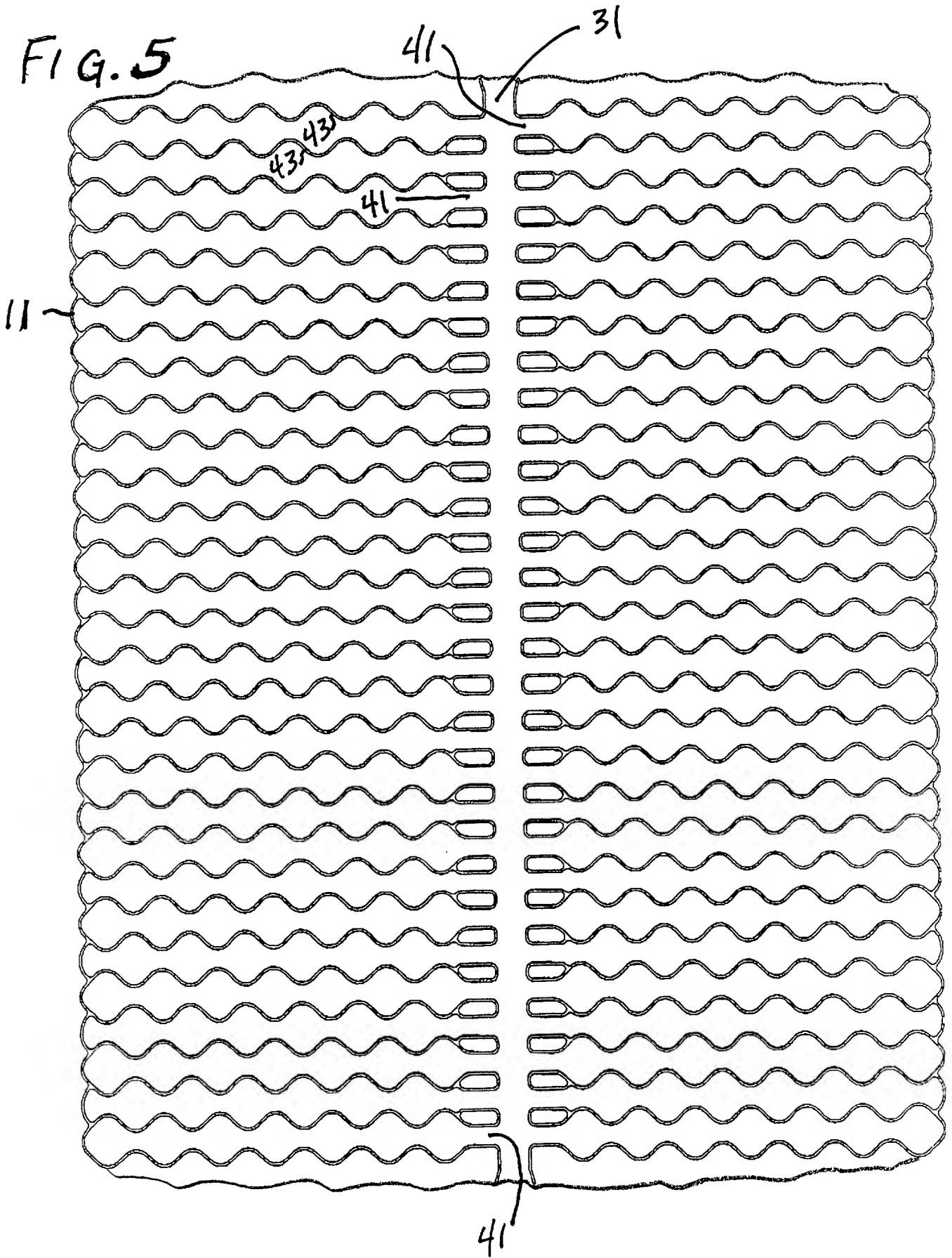


FIG. 5



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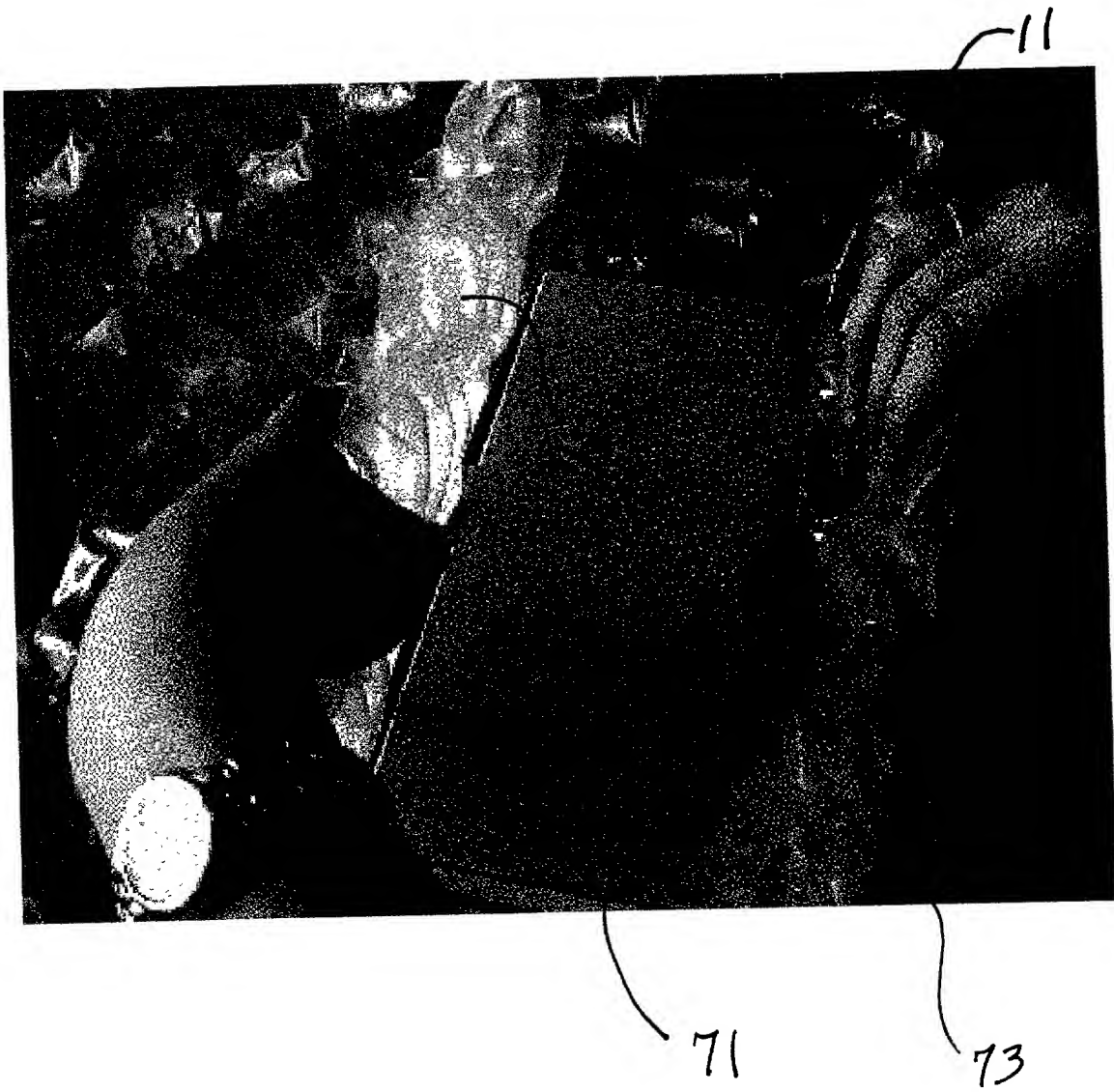


FIG. 6

A high-contrast, black and white photograph showing a close-up of a person's hand holding a small, dark object, possibly a camera or a small box, against a dark background. The image is grainy and has a high level of contrast, with the hand and the object being the primary light sources.

73

FIG. 7

Practitioner's Docket No. F-1418-P**PATENT****COMBINED DECLARATION AND POWER OF ATTORNEY**(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

☒ original.☐ design.

NOTE: With the exception of a supplemental oath or declaration submitted in a reissue, a supplemental oath or declaration is not treated as an amendment under 37 CFR 1.312 (Amendments after allowance). M.P.E.P. § 714.16, 7th Edition.

☐ supplemental.NOTE: If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.☐ national stage of PCT.

NOTE: If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.

NOTE: See 37 C.F.R. § 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.

☐ divisional.☐ continuation.

NOTE: Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. § 1.53(b) (application filing requirements — nonprovisional application).

☐ continuation-in-part (C-I-P).**INVENTORSHIP IDENTIFICATION**

WARNING: If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTIONINFLATABLE, CUSHIONING, BUBBLE WRAP PRODUCT HAVING
MULTIPLE, INTERCONNECTED, BUBBLE STRUCTURES

SPECIFICATION IDENTIFICATION

the specification of which:

(complete (a), (b), or (c))

(a) ☒ is attached hereto.

NOTE: "The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing,

"(2) name of inventor(s), and attorney docket number which was on the specification as filed,
or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) ☐ was filed on _____, as ☐ Serial No. 0 / _____
or ☐ _____
and was amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 C.F.R. § 1.67.

NOTE: "The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 CFR 1.63:

"(A) application number (consisting of the series code and the serial number, e.g., 08/123,456);

"(B) serial number and filing date;

"(C) attorney docket number which was on the specification as filed;

"(D) title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

"(E) title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number, e.g., 08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration."

M.P.E.P. § 601.01(a), 7th Ed.

(c) ☐ was described and claimed in PCT International Application No. _____, filed on _____ and as amended under PCT Article 19 on _____ (if any).

(Declaration and Power of Attorney [1-1]—page 2 of 7)

0974789 4400

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>
			<input type="checkbox"/> YES NO <input type="checkbox"/>

CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(34 U.S.C. § 119(e))

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER

FILING DATE

____ / _____

____ / _____

____ / _____

CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S)
UNDER 35 U.S.C. § 120

- ☐ The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART (C-I-P) APPLICATION.

(Declaration and Power of Attorney [1-1]—page 4 of 7)

**ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. § 120.

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

Donald C. Feix
Registration No. 19,328

(check the following item, if applicable)

- ☒ I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.
- ☐ Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

NOTE: "Special care should be taken in continuation or divisional applications to ensure that any change of correspondence address in a prior application is reflected in the continuation or divisional application. For example, where a copy of the oath or declaration from the prior application is submitted for a continuation or divisional application filed under 37 CFR 1.53(b) and the copy of the oath or declaration from the prior application designates an old correspondence address, the Office may not recognize, in the continuation or divisional application, the change of correspondence address made during the prosecution of the prior application. Applicant is required to identify the change of correspondence address in the continuation or divisional application to ensure that communications from the Office are mailed to the current correspondence address. 37 CFR 1.63(d)(4)." § 601.03, M.P.E.P., 7th Edition.

SEND CORRESPONDENCE TO Donald C. Feix

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

☒ Address
Donald C. Feix
241 North San Mateo Drive
San Mateo, CA 94401

Donald C. Feix
(650) 342-4508

☒ Customer Number IDON 302565

(complete the following if applicable)

Since this filing is a ☐ continuation ☐ divisional there is attached hereto a Change of Correspondence Address so that there will be no question as to where the PTO should direct all correspondence.

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other documents.

NOTE Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 CFR § 1.63(a)(3).

NOTE. Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.63(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 62 Fed. Reg. 53,131, 53,142, October 10, 1997,

Full name of sole or first inventor

Nicholas P. De Luca
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature _____

Date _____ Country of Citizenship US

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Post Office Address 31 Morningsun Road
Mill Valley, CA 94941

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Inventor's signature _____

Date _____ Country of Citizenship US

Residence Berkeley, California 94703

Post Office Address 1511-A Hearst Street
Berkeley, California 94703

Full name of third joint inventor, if any

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Inventor's signature _____

Date _____ Country of Citizenship France

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Benicia, California 94510

(check proper box(es) for any of the following added page(s)
that form a part of this declaration)

- ☐ **Signature** for fourth and subsequent joint inventors. *Number of pages added* _____.

* * *

- ☐ **Signature** by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* _____.

* * *

- ☐ **Signature** for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. *Number of pages added* _____.

* * *

- ☐ Added page for **signature** by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 CFR 1.47)

* * *

- ☐ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

☐ Number of pages added _____

* * *

- ☐ Authorization of practitioner(s) to accept and follow instructions from representative.

* * *

(if no further pages form a part of this Declaration,
then end this Declaration with this page and check the following item)

- ☒ This declaration ends with this page.